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NAS WHITING FIELD
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LETTER WITH NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONS COMMENTS ON REMEDIAL INVESTIGATION TECHNICAL MEMORANDUMS NAS WHITING FIELD FL
7/13/1992
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Ocean Resources Conservation and Assessment
Hazardous Materials Response and Assessment Division
Coastal Resources Coordination Branch

c/o USEPA Waste Division
345 Courtland Street, NE
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13 July, 1992

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Mr James Holland
Environmental Engineer
Department of The Navy
Naval Air Station - Whiting Field
Milton, Florida 32570-5000

Subject: NAS - Whiting Field: Review of Phase I Remedial Investigation/Feasibility Study Technical Memoranda Nos. 1 - 6.

Dear Mr. Leonard:

Review of the subject documents for the Naval Air Station - Whiting Field, Milton, Santa Rosa County, Florida was conducted by technical representatives of the Natural Resource Trustee for the National Oceanic and Atmospheric Administration, U.S. Department. Of Commerce. The following comments are offered for your consideration.

Documents Reviewed:

1. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 1. Geologic Assessment

2. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 2. Hydrogeological Assessment. May 1992

3. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 3. Soils Contaminant Assessment. May 1992

4. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 4. Surface Water and Sediments. May 1992

5. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 5. Groundwater Assessment. May 1992

6. Remedial Investigation and Feasibility Study, Phase I. Naval Air Station, Whiting Field, Milton, Florida. Technical Memorandum No. 6. Phase I Data Summary and Phase II - A Work Plan. May 1992

Background:

The NAS-Whiting Field site is located in Florida's northwest coastal area north of Milton, FL, and northeast of Pensacola, FL. The site consists of two airfields separated by an industrial area.

Eighteen potentially contaminated sites were identified at NAS Whiting Field during previous investigations, but data from Site 5, the Battery Shop, were not included for review.

NAS Whiting Field was constructed in the 1940's, and commissioned in 1943. Prior to the establishment of hazardous waste management and recycling programs, hazardous wastes were disposed of in on-site disposal areas, or waste oil holding sites used for fire training. Waste paints, paint thinners, solvents, waste oil, waste gasoline, hydraulic fluids, tank bottom sludge, PCB transformer fluids, and stripping wastes potentially were disposed of on site.

The NAS Whiting Field site lies within the Western Highland division of the Coastal Plain Province. The land surrounding the site consists primarily of agricultural land to the northwest, residential and forested areas to the south and southwest, and forested land around the remaining boundaries. The site is bounded by low-lying receiving water; Clear Creek to the west and south, and Big Coldwater Creek to the east. Both creeks join the Blackwater River and discharge to the estuarine waters of Blackwater Bay and East Bay of the Escambia Bay coastal system. The site does not lie within the 100 or 500 year flood plains of either stream.

Resources:

Primary habitats of concern to NOAA are wetlands, surface waters, and associated bottom substrates of Clear Creek, Big Coldwater Creek, the Blackwater River and Blackwater Bay. Secondary habitats of concern are surface waters and associated bottom substrates of East Bay.

The lower reaches of the Blackwater River are low gradient, tidal freshwater, with shallow depths allowing regular fluctuations in salinity. Surface waters typically range from brackish (5 to 20 ppt) to saline (> 20 ppt) depending on precipitation and tidal activity. The tidal amplitude in Blackwater Bay is approximately 0.5 m. Sandy substrates and small patches of sea grasses are commonly found further downstream in Blackwater Bay and provide excellent cover and forage for juvenile fish and invertebrate species. Shoreline vegetation at the headwaters of Blackwater Bay and the lower reaches of the Blackwater River is predominantly cordgrass (*Spartina* spp.). Tributaries in the region are generally shallow and characterized with moderately low pH (5.0-6.3).

East Bay, Blackwater Bay and the Blackwater River provide spawning, nursery and adult habitat for numerous NOAA trust species, including the federally threatened Gulf sturgeon and the state endangered saltmarsh topminnow. Consequently, the entire Escambia and Santa Rosa Counties coastal plain is designated by the State of Florida as a *Critical Area of State Concern.* A summary of the NOAA trust resources found in Blackwater Bay is presented in Table 1.

Gulf sturgeon are historically known to prefer larger, deeper channels, but were recently observed in the Blackwater River. Gulf sturgeon may migrate past the site to access upstream spawning habitats. The saltmarsh topminnow is known to access Big Coldwater Creek, especially during low flow periods when salinity increases. The lower reach of the Blackwater River provides nursery habitat during periods of high salinity for tarpon, Gulf menhaden, bay anchovy, pinfish, sand seatrout, spotted seatrout, spot, Atlantic croaker, red drum, striped mullet, code goby and southern flounder. Gulf killifish and sheepshead minnow spawn in the tidal freshwater reaches of the river. The American eel is ubiquitous throughout the drainage and is likely to occur in proximity to the site. Trust resource utilization of Clear Creek has not been assessed.

Species of invertebrates and marine and estuarine fishes of greatest abundance in Blackwater and East Bays include brown, and grass shrimp, blue crab, Gulf menhaden, striped mullet, Gulf killifish, Atlantic croaker, spot and bay anchovy. Blue crabs are found year-round as juveniles and adults and are likely to use the upper reaches of Blackwater Bay for forage habitat. Gulf menhaden spawn offshore in the Gulf of Mexico and juveniles migrate into bays to forage.

The Blackwater River provides an extensive sport fishery for freshwater species. Fish species of commercial and recreational significance occurring in Blackwater and East Bays include: Red drum, southern and Gulf flounder, bluefish, spotted seatrout, Spanish mackerel and Florida pompano. These species principally occur either as juveniles or foraging adults. Red drum and spotted seatrout are the most popular sport fisheries in the area and are known to migrate as juveniles upstream to the lower reaches of the Blackwater River. There are no restrictions on fisheries other than general regulations on take limit, season and minimum sizes.

All shellfisheries in Blackwater Bay currently are closed due to excessive levels of fecal coliform originating from the Milton Wastewater Treatment Plant situated at the headwaters of the Blackwater Bay. Shellfish harvesting is permitted south of Escribano Point in East Bay. Additionally, an area-wide consumption advisory is in effect for largemouth bass due to high levels of mercury contamination. The Florida Game and Freshwater Fish Commission is considering a moratorium on fishing of striped mullet. Recreational and commercial shellfisheries include shrimp, crab, brackish water clam and oyster. Angling efforts directed toward NOAA trust resources in the creeks near the site have not been documented to date.

The Florida Game and Freshwater Fish Commission operates a striped bass hatchery approximately 15 km upstream from the site. They have been stocking the Blackwater River with striped bass juveniles since 1987 to augment the restoration of the fishery.

Site-Related Contamination

The principal contaminants of concern to NOAA at NAS Whiting Field site are the trace elements and PCBs.

Soils

Analytes in soils included polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), pesticides, and trace elements. However, soils were analyzed only for a limited array of contaminants. Though sampling of individual sites appears to be complete with regards to methodology, no complete screening or analyses of contaminants of concern were conducted at any specific site.

In the reports, data were interpreted to indicate that PCB contaminant concentrations of 33 µg/kg or less were not of significant concern. This level of contamination is well below the recommended clean-up level (1.0 mg/kg) for PCBs. However, interpretation of this data was difficult because of discrepancies in the data presentation; units are listed in varying units in Technical Memorandum (TM) No. 3, Appendix A). If PCB concentrations were 33 mg/kg, the contaminant levels are high. PCBs are highly persistent pollutants that bioaccumulate. Distribution of this contaminant has not been fully examined and, until the data are clarified, conclusions about its effect and migration from the site are premature.

Units also are listed inconsistently in other Technical Memoranda. Trace element concentrations found in soils (TM 5, Section 3.2; TM 6, Section 4.3.1) are presented in mg/kg units, with lead concentrations being 43.7 mg/kg. In other tables (TM 5, Table 3.1; TM 6, Table 4.1), concentrations are given in µg/kg units, with lead concentrations at 43.7 µg/kg. A concentration of 43.7 µg/kg of lead would be of little concern to NOAA, but concentrations of 43.7 mg/kg exceed average U.S. concentrations and would be of concern to NOAA. No conclusions can be made with regards to trace element contamination until discrepancies in the data have been resolved.

Detection limits in soils were not presented. Though numerous background concentration ranges were presented, those used for concentration comparisons were not clearly defined. Conclusions cannot be drawn about soil contamination without background concentrations. In addition, other references to soil data were given (TM 6, Section 4.3.3), but these data were not available for review.

Surface Water and Sediments

All surface water and sediment samples were analyzed for VOCs, PCBs and inorganic substances. Detection limits provided for most inorganic substances in surface water were much higher than the respective ambient water quality criteria (AWQC). No organic compounds were measured in sediments from the creeks at concentrations that exceeded the detection limits. Detection limits were below the Effects Range-Low (ER-L) for those substances for which ER-L have been developed. Concentrations of aluminum, iron, lead, and silver exceeded background concentrations in the sediments at Station 2, a wetland sample along Clear Creek. Samples from the creeks had low concentrations of trace elements, but the fact that the concentrations of iron and aluminum also were low indicates that the samples may have been of coarse-grained sediments. From these data, it is difficult to determine the magnitude or extent of contamination.

Groundwater

Detection limits for groundwater were not provided. Instead, average background concentrations of trace elements in groundwater are used for comparison. Those data may be misleading due to the fact that groundwater contamination from the site may have affected background groundwater samples. Detection limits can be implied from the data tables, but the lowest concentrations reported exceed recommended screening criteria (ten-times AWQC) by one to two orders of magnitude. Though the methodology of sampling appears to be complete, it is not possible to determine the magnitude or extent of contamination from the data presented.

Pathways of Contamination

The pathways for contaminant migration that are of concern to NOAA are groundwater transport and surface water runoff to drainage ditches that lead to nearby creeks. The groundwater system at NAS Whiting Field is composed of three aquifers: the sand and gravel aquifer, the Upper Floridian aquifer, and the Lower Floridian aquifer. The sand and gravel aquifer is located at a depth of 55-100 m below ground surface (bgs). The Upper Floridian is between 335-500 m bgs, and the Lower Floridian aquifer is located at a depth of 518-640 m bgs. Groundwater from the sand and gravel aquifer discharges into Clear Creek to the west and south of the site.

Surface water discharge is by runoff into Clear Creek to the west and south, and into Big Coldwater Creek to the east of the site. These streams merge with the Blackwater River southwest

of the site which, in turn, flows to the river's convergence with Blackwater Bay and on to East Bay. The site is located approximately 63 km from the Gulf of Mexico.

Comments:

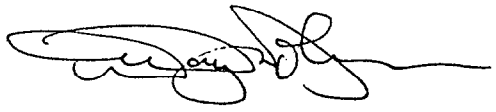
The data presented in the documents reviewed were confusing and inconsistent. The text referred to tables that could not be located (TM 6, p. 4-11 reference to TM 5 data for soils), concentrations were reported in units of mg/kg in the text and µg/kg in corresponding tables, and references to specific criteria used for screening in soils were not given. The proximity of the site to East Bay and the hydraulic link to the Bay by way of the creeks in the area suggest that contaminants migrating from this site could pose a significant threat to NOAA trust resources. However, this can not be evaluated fully without complete, accurate data.

The resources associated with this site are diverse. Pathways to these resources have been documented and the potential for contaminate exposure of trust resources does exist. On the basis of the information currently available, this site represents a threat to NOAA trust resources.

Additional data regarding the contamination in soils and groundwater on the site should be gathered. Sediment samples from established deposition areas in the creeks below the site would help determine whether off-site migration has been extensive. All samples should be analyzed for the same contaminants, and data should be compiled and presented to delineate source areas and pathways of contaminant migration. Analytical methods used should incorporate detection limits that are equal to or less than appropriate screening guidelines and criteria, where available, for the protection of NOAA trust resources.

Thank you for providing NOAA the opportunity to comment on this site and for keeping me appraised of ongoing activities. I will be happy to discuss any questions or comments pertaining to this review that you may have. My telephone number is (404) 347-5231.

Sincerely yours,



Waynon Johnson
Coastal Resource Coordinator
NOAA, Region IV

Table 1. NOAA trust resources occurring in Blackwater Bay near NAS Whiting Field.

Species		Habitat Use			Fisheries	
Common Name	Scientific Name	Spawning Ground	Nursery Ground	Adult Forage	Comm. Fishery	Recr. Fishery
ANADROMOUS/CATADROMOUS SPECIES						
Gulf sturgeon	*Acipenser desotoii*		♦	♦		
Skipjack herring[1]	*Alosa Chrysochloris*	♦	♦	♦		
American eel	*Anguilla rostrata*		♦	♦		
Striped bass	*Morone saxatilis*		♦			
ESTUARINE SPECIES						
Bay anchovy	*Anchoa mitchilli*	♦	♦	♦	♦	
Gulf menhaden	*Brevoortia patronus*		♦	♦		
Crevalle jack	*Caranx hippos*		♦	♦	♦	♦
Sand sea trout	*Cynoscion arenarius*	♦	♦	♦	♦	♦
Spotted sea trout	*Cynoscion nebulosus*	♦	♦	♦	♦	♦
Sheepshead minnow	*Cyprinodon variegatus*	♦	♦	♦		
Gulf killifish	*Fundulus grandis*	♦	♦	♦		
Saltmarsh topminnow	*Fundulus jenkinsi*					
Code goby	*Gobiosoma robustum*	♦	♦	♦		
Pinfish	*Lagodon rhomboides*		♦	♦	♦	♦
Spot	*Leiostomus xanthurus*		♦	♦	♦	
Gray snapper	*Lutjanus griseus*		♦	♦	♦	♦
Tarpon	*Megalops atlanticus*		♦	♦		♦
Atlantic croaker	*Micropogonias undulatus*		♦	♦	♦	♦
Striped mullet	*Mugil cephalus*		♦	♦	♦	♦
Gulf flounder	*Paralichthys albigutta*		♦	♦	♦	♦
Southern flounder	*Paralichthys lethostigma*		♦	♦	♦	♦
Bluefish	*Pomatomus saltatrix*		♦	♦	♦	♦
Red drum	*Sciaenops ocellatus*		♦	♦	♦	♦
Spanish mackerel	*Scomberomorus maculatus*		♦	♦	♦	♦
Florida pompano	*Trachinotus carolinus*		♦	♦	♦	♦
INVERTEBRATE SPECIES						
Bay scallop	*Aequipecten irradians*		♦	♦	♦	♦
American oyster	*Crassostrea virginica*	♦	♦	♦	♦	♦
Common rangia	*Rangia cuneata*	♦	♦	♦	♦	♦
Brown shrimp	*Penaeus aztecus*		♦	♦	♦	♦
Pink shrimp	*Penaeus duorarum*		♦	♦	♦	♦
White shrimp	*Penaeus setiferus*		♦	♦	♦	♦
Grass shrimp	*Palaemonetes pugio*		♦	♦	♦	♦
Gulf stone crab	*Menippe adina*	♦	♦	♦	♦	♦
Blue crab	*Callinectes sapidus*		♦	♦	♦	♦

1. This species is not a true anadromous species, but is primarily a freshwater species which spawns in freshwater and regularly migrates into estuarine nursery and forage habitats.